BASIS FOR AMENDMENTS

By the amendments presented, the Specification is amended on page 2 to correct a minor grammatical error as suggested by the Examiner.

Also by the amendments presented, the Claims have been amended as follows:

Claims 17 and 30 are amended to replace the chemical symbols "C18:1 and C18:2 unsaturates" with their proper chemical names, "oleate" and "linoleate", respectively. Support for these amendments is found on page 9, lines 21-24 of the Specification.

Claims 34 and 39 are amended to change their dependencies from Claim 33 to Claim 22, thereby providing proper antecedent basis for the term "step ci)".

Upon entry of the amendments presented, Claims 1-40 are pending in the application. No additional claims fee is believed to be due.

REMARKS

STATUS OF THE CASE

This amendment and response are directed to Applicants' Case 6586R, U.S. Serial No. 08/914,743 filed on August 19, 1997, which is a continuation-in-part of Case 6586, U.S. Serial No. 08/844,590 filed on April 21, 1997, which is now abandoned.

In a sincere effort to advance the prosecution of this case and to respond to the Examiner's rejections as outlined in the Office Action, Applicants respectfully submit this Amendment and Response, and respectfully request entry of the amendments and consideration of the remarks made herein.

Applicants' Invention

The present invention is directed to a flowable nondigestible oil composition comprising a liquid polyol fatty acid polyester having a complete melt point of less than 37° C., and a crystallized solid polyol fatty acid polyester having a complete melt point of at least about 37°C. The solid polyol fatty acid polyester comprises a plurality of crystallized spherulites comprising a solid saturated polyol polyester within the liquid polyol fatty acid polyester. The flowable, nondigestible oil has a Consistency (K) within the temperature range of 20°C to 40°C of less than about 600 $P.sec^{(n-1)}$, and the solid polyol fatty acid polyester is crystallized while shearing the nondigestible oil. These compositions are capable of being handled and stored in a flowable state at ambient storage temperatures, thereby avoiding exposure of the composition to high temperatures (generally greater than 50°C.). Such ambient handling and storage conditions tends to minimize the effects of heat and high temperatures on the chemical stability of the polyol fatty acid polyester, which results

in greater oxidative stability and flavor stability during extended storage of both the nondigestible oil and the food products containing the nondigestible oil.

The present invention is also directed to a process for making a flowable nondigestible oil. The process comprises the steps of (1) completely melting the nondigestible oil composition containing the solid polyol fatty acid polyester and the liquid polyol fatty acid polyester, (2) crystallizing a portion of the solid saturated polyol polyester into a plurality of spherulites, thereby forming a partially crystallized polyol polyester composition; (3) crystallizing a remaining portion of the solid polyol fatty acid polyester from the partially crystallized polyol polyester composition, and (4) shearing the partially crystallized polyol polyester composition during the step of crystallizing the remaining portion of the solid polyol fatty acid polyester.

APPLICANTS' ARGUMENTS

I. Rejection under 35 USC § 112, Second Paragraph

Claims 30, 31, 34, and 39 have been rejected under 35 USC § 112, Second Paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

As to Claim 30, line 4, the Examiner states that "the symbols "C18:1" and "C18:2" are not art recognized compound names which renders the claim indefinite," (see page 2 of Office Action). Claim 31 is also rejected since it depends from Claim 30. Applicants submit that Claim 30 has been amended herein to replace the chemical symbols with the proper chemical names.

As to Claims 34 and 39, line 1 of each, the Examiner states that "the term "step ci)" lacks proper antecedent basis since "step ci)" has not been disclosed in Claims 21, 32, and 33 (the claims which Claims 34 and 39 depend from)," (see page 2 of Office Action). Applicants submit that both Claims 34 and 39 have been amended to change their dependencies from Claim 33 to Claim 22, thereby providing proper antecedent basis for the term "step ci)".

In light of the amendments to Claims 30, 34, and 39, it is submitted that Applicants' claims as they now stand are in complete compliance with the definiteness requirements of 35 USC § 112, Second Paragraph.

II. Rejection under 35 USC § 103(a)

Claims 1-19 have been rejected under 35 USC § 103(a) as being unpatentable over Elsen et al. (U.S. Patent No.5,422,131). The Examiner asserts that Applicants' claimed composition differs from the compositions disclosed in Elsen et al. by the recitation of Applicants' compositions having a Consistency in a temperature range of 20-40°C of less than about 600P.sec$^{(n-1)}$" which is not recited in Elsen et al. Furthermore, the Examiner asserts that "this particular property does not appear to be of patentable moment and may be inherently disclosed in the nondigestible composition of the Elsen et al. patent." See page 4 of Office Action. Accordingly, the Examiner further asserts that it would

have been obvious to one of ordinary skill in the art having the Elsen et al. patent before him to obtain the instant claimed nondigestible composition in view of their closely related structures and the resulting expectation of similar organoleptic properties to food prepared with the nondigestible compositions. Applicants respectfully submit that this rejection is unfounded and should be withdrawn.

According to Elsen et al., nondigestible fats having relatively flat Solid Fat Content (SFC) profile slopes between typical room and body temperatures are disclosed. These nondigestible fats contain a liquid nondigestible oil and relatively small nondigestible particles dispersed in the oil to control passive oil loss. Edible fat-containing products containing these nondigestible fats can be less waxy tasting due to the lower level of solids required for passive oil loss control.

Applicants respectfully submit that the disclosure of Elsen et al. does not teach or suggest the flowable nondigestible oil compositions of the present invention. First of all, Applicants' nondigestible oil compositions are capable of being handled and stored in a flowable state at ambient and ordinary storage temperatures. Such ambient handling and storage conditions tends to minimize the effects of heat and high temperatures on the chemical stability of the polyol fatty acid polyester, which results in greater oxidative stability and flavor stability during extended storage of both the nondigestible oil and the food products containing the nondigestible oil. In contrast, the compositions of Elsen et al. are processed to be nondigestible fat compositions which are non-flowable at ambient and ordinary storage temperatures. Applicants submit that while the compositions of the present invention are similar in chemical makeup to those of Elsen et al., it has suprisingly been discovered that the modification of certain process parameters from those as disclosed by Elsen et al. will result in compositions which are physically different from those of Elsen et al.; the compositions of the present invention are flowable nondigestible oils as opposed to stiffened or non-flowable nondigestible fats of Elsen et al.

Furthermore, the flowable oil compositions of the present invention are prepared by a process which generates slower crystallization rates by controlling the rate of cooling at about 0.5°-0.7° C./minute, which results in larger particle sizes for the crystallized aggregated spherulites. In addition, the application of shearing during the second crystallization step is critical to obtaining a flowable composition. In contrast, the compositions of Elsen et al. are prepared by a process which promotes faster crystallization rates by applying very fast cooling rates (greater than 0.6°C/min, preferably greater than 2.8°C/min, more preferably greater than 5.6°C/min, and most preferably greater than 27.8°C/min). These very fast cooling rates produce smaller particle sizes which result in a stiffened, nonflowable composition. Furthermore, the process of Elsen et al. does not require the presence of shearing during the crystallization step.

Applicants find no teachings or suggestions in Elsen et al. that would lead the skilled artisan to select a slower rate of crystallization in combination with the application of shearing during the

second crystallization step to thereby obtain the flowable nondigestible oil compositions of the present invention. For these reasons, the rejection of Applicants' claims over Elsen et al. is unfounded and should be withdrawn.

III. Rejection under 35 USC § 103(a)

Claims 20-40 have been rejected under 35 USC § 103(a) as being unpatentable over Elsen et al. (U.S. Patent No. 5,422,131). The Examiner asserts that the starting materials used in Applicants' claims are analogous to the starting materials used in the process disclosed by Elsen et al., and that one skilled in the art would have been motivated to employ the process of the prior art with the expectation of obtaining the desired product because he would have expected the analogous starting materials to react similarly. Applicants respectfully submit that this rejection is unfounded and should be withdrawn.

The process for making a flowable nondigestible oil according to the present invention comprises the steps of (1) completely melting the nondigestible oil composition containing the solid polyol fatty acid polyester and the liquid polyol fatty acid polyester, (2) crystallizing a portion of the solid saturated polyol polyester into a plurality of spherulites, thereby forming a partially crystallized polyol polyester composition; (3) crystallizing a remaining portion of the solid polyol fatty acid polyester from the partially crystallized polyol polyester composition, and (4) shearing the partially crystallized polyol polyester composition during the step of crystallizing the remaining portion of the solid polyol fatty acid polyester.

Applicants respectfully submit that the disclosure of Elsen et al. does not teach or suggest the process for preparing the flowable nondigestible oils of the present invention. Applicants' process provides nondigestible oil compositions that differ in at least three ways from those as taught by Elsen et al.

First of all, Applicants' flowable, nondigestible oil has a Consistency (K) within the temperature range of 20°C to 40°C of less than about 600 $P.sec^{(n-1)}$, preferably less than about 400 $P.sec^{(n-1)}$, more preferably less than about 200 $P.sec^{(n-1)}$, and most preferably less than about 100 $P.sec^{(n-1)}$. See page 6, lines 9-12 of Applicants' specification. In contrast, a stiffened, nonflowable composition comprising crystalline solid polyol fatty acid polyester will have a Consistency of more than about 600 $P.sec^{(n-1)}$. See page 17, lines 1-5 of Applicants' specification.

In addition, the application of shearing during the second crystallization step is required to obtaining a flowable composition. See page 16, lines 30-34; page 20, lines 15-28; and Claim 20 of Applicants' specification.

Furthermore, during step 3 of Applicants' process, it is generally preferred to reduce the second crystallization temperature slowly through the temperature range where the solid diversely esterified polyol polyester crystallizes, in order to likewise slow the rate of crystal formation of the

solid diversely esterified polyol polyester. This slow rate of temperature reduction is believed to promote the formation of solid diversely esterified polyol polyester crystals on the surface of the spherulites, as opposed to formation of the aggregates or unaggregated crystals in the liquid polyol polyester. In order to maximize the crystallization of solid diversely esterified polyol polyester on the surface of the spherulites, which in turn results in a more flowable nondigestible oil having a lower consistency, the rate of cooling is typically about 0.5–0.7°/min. This slow rate of cooling is preferably accompanied by moderate agitation which ensures that the composition is well mixed in the crystallization vessel, and promotes transport of the solid diversely esterified polyol polyester to the surface of the spherulite for crystallization. See page 19 lines 31-37 and page 20, lines 1-8 of Applicants' specification.

In contrast, the process of Elsen et al. utilizes a very rapid cooling rate which results in the formation of smaller particles of solid polyol polyester material. Desirable cooling rates for forming the compositions of Elsen et al are typically greater than 0.6°C/min, preferably greater than 2.8°C/min, more preferably greater than 5.6°C/min, and most preferably greater than 27.8°C/min., (see column 21, lines 51-68 of Elsen et al.). This rapid cooling process as taught by Elsen et al. is described in Applicants' specification on pages 14, lines 30-35 and page 15, lines 1-13, as a process for the formation of a stiffened, nonflowable nondigestible oil. Furthermore, there is no teaching or suggestion of applying shearing during the second crystallization step in the process of Elsen et al., which is required for the formation of a flowable nondigestible oil composition. For these reasons, the rejection of Applicants' claims over Elsen et al. is unfounded and should be withdrawn.

CONCLUSION

Applicants have made an earnest effort to place their application in proper form and to distinguish their claimed invention from the applied prior art. Reconsideration of this application, entry of the amendments presented, withdrawal of the claim rejections under 35 USC § 112, and 35 USC § 103(a), and allowance of Claims 1-40 are respectfully requested.

Respectfully submitted,
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March 1, 1999
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